

Dietary Risk Assessment Procedures for the EBDC Fungicides

Dietary Risk Assessment procedures for pesticide registration eligibility under the Food Quality Protection Act (FQPA) are established by the U.S. Environmental Protection Agency (EPA). The procedures for pesticides consider both short term and long term exposures to the U.S. population in general and to population sub-groups such as children. The risk estimates use information on individual daily food consumption and individual food residue data.

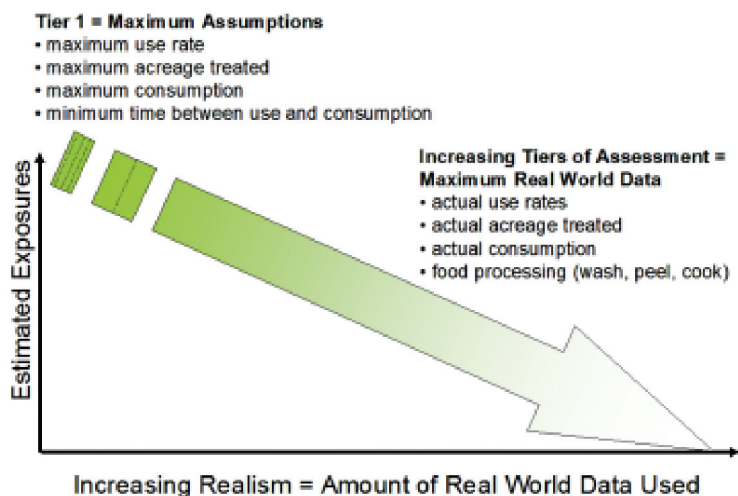
A Tiered Approach.

The current approach of the EPA Office of Pesticide Programs (OPP) is to use a tiered approach for dietary risk assessment that spans the spectrum from very conservative assumptions about food residues, to inclusion of more realistic residue values measured closer to the point of consumption. At each tier of assessment, dietary exposure is calculated as the product of the amount of pesticide residue on a food item multiplied by the amount of the food item consumed by an individual each day.

Critical to any acute dietary assessment is residue and consumption data. Extensive field studies that measure potential food residues are required by regulatory agencies prior to allowing the use of a pesticide on crops. Such field studies quantify the terminal residues of the pesticide on plant tissues that could be consumed, directly or indirectly, by the U.S. population. Such residues are measured under conditions of the maximum proposed application rate and the shortest interval between application and harvest.

The first tier assessment is a conservative estimate of dietary exposure and assumes that every acre of each crop listed on the pesticide label is treated and the pesticide residues occur at the legal maximum limit.

In higher tier assessments, many of the overly conservative default assumptions about use and exposure are replaced with more accurate, realistic measures. Rather than simply assuming every acre is treated, more accurate estimates of the percentage of acres treated are used. In addition, rather than worst-case tolerance values, monitoring data of actual crops and food items that we consume are used. Finally, higher tiers can incorporate the effect of many of the common practices such as washing, peeling and cooking on any remaining residue levels.



Each subsequent refinement requires more data and more analysis to estimate the actual food residues at the point of consumption. The most refined estimates require widespread food residue monitoring data, food processing studies, and a thorough understanding of the use patterns and market share of the pesticide. The market-basket residue surveys and monitoring data better represent the magnitude of pesticide residue on food as it is purchased by the consumer, since samples are taken closer to the point of consumption, and more accurately represent actual patterns of use and food distribution than measurements from a typical field trial. For established pesticide products, like the EBDC fungicides, such higher tiered assessments are appropriate for estimation of dietary risk.

For estimates of the dietary risk posed by the EBDC fungicides, food consumption data from the USDA Continuing Survey of Food Intakes by Individuals (CSFII) were used. The foods sampled in the market basket survey were selected because of their high usage on the crops – fresh and processed foods – with high consumption. Because of the nature of the EBDC group of fungicides, food residues for both the parent EBDC and ETU, their common metabolite, were considered.

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